UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,162	08/20/2003	Stephen M. Trimberger	X-1393 US	5769

24309   7590   01/31/2008

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EXAMINER
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ART UNIT	PAPER NUMBER
2129	

MAIL DATE	DELIVERY MODE
01/31/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/644,162	TRIMBERGER, STEPHEN M.
	Examiner	Art Unit	
	Lut Wong	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 November 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-33</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-33</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>10-09-2007</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This office action is responsive to an RCE AMENDMENT entered Oct 09, 2007

for the patent application 10/644162.

The Office Action of Aug 03, 2007 is fully incorporated into this Office Action by

reference.

Status of Claims

Claims 1-33 are pending. Claims 3, 4, 10, 13, 15, 16, 20-33 have been

amended.

Drawings

Response to Arguments

Applicant's amendment to the drawing overcomes the objection. However,

Applicant's arguments are not persuasive. In response to argument on pg. 10, MPEP

2163.02 applies to written description only, not drawing. The objection of drawing are

governed by CFR 1.83(a) where it states "The drawing in a nonprovisional application

must show every feature of the invention specified in the claims"

Claim Objections

Response to Arguments

Applicant's amendments to the claims overcome the objections. However,

Applicant's arguments are not persuasive.

In re pg. 12, applicant argues requiring claim 4 to repeat entire clause is

unfounded.

In response, 35 USC 112 4th paragraph states

Subject to the following paragraph, a claim in <u>dependent form shall contain a</u>

<u>reference to a claim previously set forth and then specify a further limitation of the</u>

<u>subject matter claimed</u>. A claim in dependent form shall be construed to incorporate

by reference all the limitations of the claim to which it refers.

Hence, without the essential phrase of "determined in a prior generation", claim 4

does not necessary further limit claim 3.

In re pg. 13, applicant argues claim 20 is abundantly clear in view of the spec

[0032].

In response, the claims and only the claims form the metes and bounds of the

invention. Limitations appearing in the specification but not recited in the claim are not

read into the claim.

In re pg. 13-14, applicant argues the objection of "fault-tolerant system" in claims

25-33 is unfounded.

In response, the preamble is objected because it is not suggested by the claim

body. See MPEP 2163-II-A1. See, e.g., Bell Communications Research, Inc. v. Vitalink

Communications Corp., 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995) ("[A]

claim preamble has the import that the claim as a whole suggests for it.");

Claim Rejections - 35 USC § 112

Response to Arguments

Applicant's amendments to the claims overcome the 112 2nd paragraph

rejections of claims 10, 13, 15, 16, 19, 25-33.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of

making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to

which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the

best mode contemplated by the inventor of carrying out his invention.

Claims 3-4 are rejected under 35 U.S.C. 112, first paragraph, as based on a

disclosure which is not enabling. The initial weight of each designs are critical or

essential to the practice of the invention, but not included in the claim(s) is not

enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356

(CCPA 1976).

Response to Arguments

Applicant's amendments to the claims overcome the 112 1st paragraph rejections

of claims 13, 15, 16. However, the rejection of claim 3 is maintained.

In re pg. 16, applicant argues there in no limitation on initial generation, and the

applicant is therefore uncertain as to what the Examiner is referring to in his question.

In response, applicant mentioned that there is no "initial generation" claimed. .

The Examiner has to agree that "initial population" is not explicitly recited. However,

just by reading the claim 1, one skill in the art would immediately knows the first round is

the initial generation. In other word, it is implied.

To make it even clearer, claim 1 recites "a method for operating a system having

a population of designs". One skill in the art would know it is the initial population and

say call it gen0, the rest of claim 1 and claim 2 follows and no problem. Claim 3

requires "weight the result signal as a function of the associated fitness level determined

in a prior generation". The claim is supported by the spec when it is at generation 1.

What happens at gen1 is, when the design performs well in gen0, it gets more weight at

gen1. This is perfectly supported and clear and well understood by an ordinary skill in

the art. However, problem arises when it is at gen0 (i.e. the initial generation). Based

on the claimed limitation, the weight is determined as a function of gen(-1) (because of

the claim limitation "prior generation" in claim 3). Applicant should note that because

gen0 is the first and the foremost generation, gen(-1) in this case does not exist. So,

how can each designs being weighted at gen0 when there is no fitness level determined

in prior generation (i.e. at gen(-1))?

Claim Rejections - 35 USC § 101

Response to Arguments

Applicant's amendments to the claims overcome the 101 rejections of claims 21-

24. The claims are now directed to evolving electronic hardware systems only.

Claim Rejections - 35 USC § 102

Claims 1-17, 21-24 are rejected under 35 U.S.C. 102(e) as anticipated by

Buczak et al (US 2003/0050902), as set forth in the previous office action for

reason of record.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 17, applicant argues Buczak's "convergence criteria" does not meet the

claim limitation

In response,

1) EN : ¶ 2 applies: the word "consensus" is not defined. Applicant's spec [0025]

merely gives examples on how consensus result is obtained.

2) the "convergence criteria" reads on the claimed limitation "consensus results"

because 1) as stated above, no definition is provided. 2) Buczak's [0047] states "the

fitness of the individuals meets some defined fitness criteria". Hence, when the criteria

is meet, the individuals reaches a "consensus". In other words, the "defined fitness

criteria" can be treated as a "consensus".

3) Since the "defined fitness criteria" is treated as a "consensus", the fitness level

is determined as a function of a consensus result. In other words, the fitness is based

on the "defined fitness criteria".

4) Buczak's [0047] also states "the accepted level of fitness may not be known,

so the genetic algorithm is stopped after some number of generations, or after some

number of generation <u>where there is no change in the fittest individual</u>". If such

condition is not "consensus", what else can it be?

· 5) As a further example, say, when the fitness of each designs reaches 100

(assume 100 is the defined fitness), each designs has reached a "consensus".

In re pg. 17, applicant seems unclear which of Buczak's term "convergence

criteria" or "defined fitness criteria" correspond to "consensus".

In response, the Examiner does not see any problem with these terms. The

"convergence criteria" referred to as checking to see if the fitness of the individual meets

some "defined fitness criteria" (See Buczak [0047]). That is, when the fitness of each

design meets "defined fitness criteria", it also meets "convergence criteria".

In re pg. 17, applicant argues the office action stopped short of showing how the

"convergence criteria" or defined fitness criteria" can function as the claimed "consensus

result".

In response, as set forth in the previous office action, the "convergence criteria"

reads on the claimed limitation "consensus results" because 1) as stated above, no

definition is provided. 2) Buczak's [0047] states "the fitness of the individuals meets

some defined fitness criteria". Hence, when the criteria is meet, the individuals reaches

a "consensus". In other words, the "defined fitness criteria" can be treated as a

"consensus".

In re pg. 18, applicant argues "Buczak's alleged consensus is not determined as a function of generated result signals; rather, it is a predetermined value"

In response, The "convergence criteria" referred to as checking to see if the fitness of the individual meets some "defined fitness criteria" (See Buczak [0047]).

It is readily clear that the fitness is a function of generated result signals.

To help applicant understands Buczak's reference better, the claim limitation of "determining a consensus result as a function of at least two of the generated result signals" is addressed in Buczak [0047]. When the fitness of two individual reaches the defined fitness criteria (say, fitness=100), these two individuals reaches a "consensus" that an optimal solution is reach.

Claim Rejections - 35 USC § 102

Claims 25-28, 30-33 are rejected under 35 U.S.C. 102(a) as being anticipated by Lohn et al, as set forth in the previous office action for reason of record.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 18-19, applicant argues Lohn does not determines any consensus result as a function of generated result signals as claimed.

In response,

1) EN: ¶ 2 applies: the word "consensus" is not defined. Applicant's spec [0025] merely gives examples on how consensus result is obtained.

2) The fitness function of Lohn's reads on "determining a consensus result as a

function of associated result signal from at least two designs" because 1) as stated

above, no definition for "consensus result". 2) the fitness function of Lohn "<u>compares</u>

<u>energies and forces computed</u> for a given set of atomic conformation using the evolving

parameters <u>with externally supplied energies and forces</u>". As such, the "externally

supplied energies and forces" are the reference point for a consensus result. When the

energies and forces computed for two individual are both good or closed to the

reference point, the two individuals have reached a "consensus".

Claim Rejections - 35 USC § 103

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Lohn et al ("Evolvable Systems for Space Applications" SMC-IT 2003, July 13-16),

and Loch et al ("Parallel and Sequential Testing of Design Alternatives"

Management Science 2001) as set forth in the previous office action for reason of

record .

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In re pg. 19-20, applicant argues it is unclear as to how Lohn's approach could

work with a sequential program application. While this maybe possible, the Final Office

Action has not described how Lohn would function".

In response,

1) The Examiner disagrees. The combination of Lohn and Loch has a predictable result, so it is possible. Lohn teaches evolving alternative logic configurations without explicitly show how the evolution is performed. There are only two approaches, parallel and sequential as shown in Loch. Hence, using Fig. 8 of Lohn as an example, one of ordinary skill in the art could have replaced one block at a time to test the design and collects learning from each testing. Furthermore, the whole NPL of Loch teaches how to perform sequentially testing.

2) The Examiner contents one skill or less skill in the art would clearly understand how the combination would function.

3) To further assist applicant, take Lohn Fig.8 for example, one skill in the art would tell the program controller to replace one design at a time (such as, from the top left to lower right one by one), and measure the resulting signals one by one.

Examiner Note (EN)

¶ 1 : The claims and only the claims form the metes and bounds of the invention. Limitations appearing in the specification but not recited in the claim are not read into the claim. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. There is no mention of these limitations in the claims and the specification is not the measure of the invention. Therefore, limitations contained therein can not be read into the claims for the purpose of avoiding the prior art; see In re Sprock, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968).

¶ 2: Applicant fails to define or further define the term(s). Hence, the Examiner has full latitude to interpret each claim in the broadest reasonable sense

Notice of reference cited

Sverre Vigander ("Evolutionary Fault Repair of Electronics in Space Applications" Feb 2001)

Invitation

1) Applicant is strongly advised to further define "consensus".

2) Consider the cited but not applied reference, especially Fig. 2.1, section 4.2 on voting system that choose majority answer as correct answer, which clearly reads on "consensus"

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lut Wong whose telephone number is (571) 270-1123. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent David can be reached on (571) 272-3080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

/Lut Wong/

Patent Examiner, AU 2129

DAVID VINCENT 11/24/08
SUPERVISORY PATENT EXAMINER